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☐	L5	L4 and (rhodium or ruthenium)	233
☐	L4	L3 and dimethyl ether	662
☐	L3	L2 and (synthesis gas or hydrogen near1 carbon dioxide)	5311
☐	L2	L1 and (carbon dioxide and water)	33113
☐	L1	(methane or natural gas or lower near2 hydrocarbon$1)	214713

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☐ 1. Document ID: US 20040048936 A1

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L6: Entry 1 of 10 File: PGPB Mar 11, 2004

PGPUB-DOCUMENT-NUMBER: 20040048936
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040048936 A1

TITLE: Process of producing liquid hydrocarbon oil or dimethyl ether from lower hydrocarbon gas containing carbon dioxide

PUBLICATION-DATE: March 11, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Shiroto, Yoshimi	Yokohama-shi		JP	
Kawazuishi, Kenichi	Yokohama-shi		JP	
Tauchi, Masato	Fujisawa-shi		JP	
Shimura, Mitsunori	Yokohama-shi		JP	

US-CL-CURRENT: 518/716

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWMC | Draw. De

☐ 2. Document ID: US 20030036572 A1

L6: Entry 2 of 10 File: PGPB Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030036572
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030036572 A1

TITLE: Process of producing liquid hydrocarbon oil or dimethyl ether from lower hydrocarbon gas containing carbon dioxide

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Shiroto, Yoshimi	Yokohama-shi		JP	

Kawazuishi, Kenichi	Yokohama-shi	JP
Tauchi, Masato	Fujisawa-shi	JP
Shimura, Mitsunori	Yokohama-shi	JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
CHIYODA CORPORATION				03

APPL-NO: 09/ 825967 [PALM]
DATE FILED: April 5, 2001

INT-CL: [07] C07 C 27/06

US-CL-PUBLISHED: 518/704
US-CL-CURRENT: 518/704

ABSTRACT:

A process for the production of a liquid hydrocarbon oil from a gas feed containing a lower hydrocarbon and CO.sub.2, wherein the gas feed is mixed with H.sub.2O to obtain a mixed gas having specific CO.sub.2, H.sub.2O and lower hydrocarbon contents. The mixed gas is contacted with a Rh, Ru/MgO catalyst having a specific surface area of 5 m.sup.2/g or less to produce a synthesis gas with a carbon conversion efficiency Cf of at least 50%. The thus obtained synthesis gas having a H.sub.2/CO molar ratio of 1.5-2.5 is reacted in the presence of a Fischer-Tropsch catalyst to obtain a liquid hydrocarbon oil, while the synthesis gas having a H.sub.2/CO molar ratio of 0.5-1.5 is reacted in the presence of one or more catalysts having methanol synthesizing, dehydrating and CO shift reaction activities to obtain dimethyl ether.

☐ 3. Document ID: US 6656978 B2

L6: Entry 3 of 10 File: USPT Dec 2, 2003

US-PAT-NO: 6656978
DOCUMENT-IDENTIFIER: US 6656978 B2

TITLE: Process of producing liquid hydrocarbon oil or dimethyl ether from lower hydrocarbon gas containing carbon dioxide

DATE-ISSUED: December 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Shiroto; Yoshimi	Yokohama			JP
Kawazuishi; Kenichi	Yokohama			JP
Tauchi; Masato	Fujisawa			JP
Shimura; Mitsunori	Yokohama			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Chiyoda Corporation				JP	03

APPL-NO: 09/ 825967 [PALM]
DATE FILED: April 5, 2001

INT-CL: [07] C07 C 27/00, C07 C 1/02

US-CL-ISSUED: 518/715; 518/702, 518/704, 252/373
US-CL-CURRENT: 518/715; 252/373, 518/702, 518/704

FIELD-OF-SEARCH: 252/373, 518/702, 518/704, 518/715

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3222132	December 1965	Dowden	423/652
4367166	January 1983	Fujitani et al.	423/652
4415484	November 1983	Setzer et al.	423/651
5246791	September 1993	Fisher et al.	429/16
5395406	March 1995	Clavenna et al.	48/198.7
5604396	February 1997	Watanabe et al.	313/485
5614163	March 1997	Bhattacharyya et al.	423/418.2
5919425	July 1999	Nguyen et al.	423/210
5958297	September 1999	Primdahl	252/373
5989457	November 1999	Seshan et al.	252/373
6277894	August 2001	Agee et al.	518/700

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0974551	January 2000	EP	
2182932	May 1987	GB	
58-49602	March 1983	JP	
60-202740	October 1985	JP	
2-227141	September 1990	JP	
2-307802	December 1990	JP	
4-331704	November 1992	JP	
9-131533	May 1997	JP	
9424042	October 1994	WO	
9616737	June 1996	WO	

OTHER PUBLICATIONS

Rostrup-Nielsen et al, CO2-Reforming oF Methane over Transition Metals, Journal of Catalysis 144, 38-49 (1993).

ART-UNIT: 1621

PRIMARY-EXAMINER: Parsa; J.

ATTY-AGENT-FIRM: Lorusso, Loud & Kelly

ABSTRACT:

A process for the production of a liquid hydrocarbon oil from a gas feed containing a lower hydrocarbon and CO.sub.2, wherein the gas feed is mixed with H.sub.2 O to obtain a mixed gas having specific CO.sub.2, H.sub.2 O and lower hydrocarbon contents. The mixed gas is contacted with a Rh, Ru/MgO catalyst having a specific surface area of 5 m.sup.2 /g or less to produce a synthesis gas with a carbon conversion efficiency Cf of at least 50%. The thus obtained synthesis gas having a H.sub.2 /CO molar ratio of 1.5-2.5 is reacted in the presence of a Fischer-Tropsch catalyst to obtain a liquid hydrocarbon oil, while the synthesis gas having a H.sub.2 /CO molar ratio of 0.5-1.5 is reacted in the presence of one or more catalysts having methanol synthesizing, dehydrating and CO shift reaction activities to obtain dimethyl ether.

8 Claims, 0 Drawing figures

☐ 4. Document ID: US 5840969 A

L6: Entry 4 of 10 File: USPT Nov 24, 1998

US-PAT-NO: 5840969
DOCUMENT-IDENTIFIER: US 5840969 A

TITLE: Process for the preparation of acetic acid from a synthesis gas of hydrogen and carbon monoxide

DATE-ISSUED: November 24, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Joensen; Finn	H.o slashed.rsholm			DK

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Haldor Topsoe A/S	Lyngby			DK	03

APPL-NO: 08/ 979527 [PALM]
DATE FILED: November 26, 1997

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
DK	1361/96	November 29, 1996

INT-CL: [06] C07 C 51/12

US-CL-ISSUED: 562/519
US-CL-CURRENT: 562/519

FIELD-OF-SEARCH: 562/519

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3769329	October 1973	Paulik et al.	260/488
4255591	March 1981	Makin et al.	562/517
5189203	February 1993	Hansen et al.	560/232
5286900	February 1994	Hansen et al.	560/232
5371286	December 1994	Blay et al.	562/519

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0250189	December 1987	EP	
0801050	October 1997	EP	
2301101	November 1996	GB	

ART-UNIT: 161

PRIMARY-EXAMINER: Geist; Gary

ASSISTANT-EXAMINER: Keys; Rosalynd

ATTY-AGENT-FIRM: Ostrolenk, Faber, Gerb & Soffen, LLP

ABSTRACT:

A process for the preparation of acetic acid product comprising, in a first catalytic step, conversion of a hydrogen and carbon monoxide containing synthesis gas to obtain a liquid process stream comprising methanol and, in a second catalytic step, carbonylation of the process stream with carbon monoxide to a product stream being rich in the acetic acid product in presence of catalytic effective amounts of a metal compound selected from Group VIII of the Periodic Table promoted with a halide compound, the improvement comprising the further steps of:

(i) withdrawing from the carbonylation step a vent gas stream comprising carbon monoxide and residual amounts of acetic acid and halide compound;

(ii) separating the vent gas stream into a liquid fraction containing a part of the residual amounts of acetic acid and part of the halide compound and a gaseous fraction with the carbon monoxide and remaining amounts of acetic acid and halide compound;

(iii) recycling the liquid fraction to the carbonylation step;

(iv) subjecting the gaseous fraction to liquid absorption to remove the acetic acid and halide compound in the gaseous fraction to obtain a carbon monoxide rich recycle stream; and

(v) introducing the carbon monoxide rich recycle stream into the synthesis gas conversion step.

6 Claims, 3 Drawing figures

☐ 5. Document ID: US 5763654 A

L6: Entry 5 of 10 File: USPT Jun 9, 1998

US-PAT-NO: 5763654
DOCUMENT-IDENTIFIER: US 5763654 A

TITLE: Process for the production of acetic acid by the carbonylation of dimethyl ether

DATE-ISSUED: June 9, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jones; Michael David	East Riding			GB
Poole; Andrew David	East Riding			GB

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
BP Chemicals Limited	London			GB2	03

APPL-NO: 08/ 731313 [PALM]
DATE FILED: October 15, 1996

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	9521501	October 20, 1995

INT-CL: [06] C07 C 51/10, C07 C 51/12, C07 C 53/08

US-CL-ISSUED: 562/517; 562/519, 562/607
US-CL-CURRENT: 562/517; 562/519, 562/607

FIELD-OF-SEARCH: 562/517, 562/519, 562/607

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3769329	October 1973	Paulik et al.	560/232
3772380	November 1973	Paulik et al.	560/232
4417000	November 1983	Slaugh et al.	518/713
5003104	March 1991	Paulik et al.	562/517
5189203	February 1993	Hansen et al.	560/232
5286900	February 1994	Hansen et al.	560/232
5510524	April 1996	Garland et al.	562/519

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
1167064	May 1984	CA	
079461	May 1983	EP	
0 566 370	October 1993	EP	
566371	October 1993	EP	
0 643 034	March 1995	EP	
1234641	June 1971	GB	
2 206 349	January 1989	GB	

ART-UNIT: 124

PRIMARY-EXAMINER: Geist; Gary

ASSISTANT-EXAMINER: Keys; Rosalynd

ATTY-AGENT-FIRM: Fay, Sharpe, Beall, Fagan, Minnich & McKee

ABSTRACT:

A process for the production of acetic acid which comprises reacting carbon monoxide with a carbonylatable reactant comprising greater than 10%, typically from 30 to 100%, by weight dimethyl ether introduced to a reactor in which there is maintained at elevated temperature a liquid reaction composition comprising a Group VIII noble metal catalyst, for example rhodium or iridium, methyl iodide promoter, an optional co-promoter and water at a concentration in the liquid reaction composition of from 1.0 to 10% by weight.

12 Claims, 0 Drawing figures

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw D

☐ 6. Document ID: US 5728871 A

L6: Entry 6 of 10 File: USPT Mar 17, 1998

US-PAT-NO: 5728871
DOCUMENT-IDENTIFIER: US 5728871 A

TITLE: Process for the preparation of acetic acid

DATE-ISSUED: March 17, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Joensen; Finn	H.o slashed.rsholm			DK
Voss; Bodil	Virum			DK
Dybkj.ae butted.r; Ib	Copenhagen			DK

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Haldor Topsoe A/S	Lyngby			DK	03

APPL-NO: 08/ 832880 [PALM]

DATE FILED: April 4, 1997

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
DK	0407/96	April 10, 1996

INT-CL: [06] C07 C 51/12

US-CL-ISSUED: 562/519
US-CL-CURRENT: 562/519

FIELD-OF-SEARCH: 562/519

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3769329	October 1973	Paulik et al.	560/232
4110359	August 1978	Marion	518/703
5189203	February 1993	Hansen et al.	560/232
5286900	February 1994	Hansen et al.	560/232

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0250189	December 1987	EP	
2206349	January 1989	GB	

ART-UNIT: 124

PRIMARY-EXAMINER: Geist; Gary

ASSISTANT-EXAMINER: Keys; Rosalynd

ATTY-AGENT-FIRM: Ostrolenk, Faber, Gerb & Soffen, LLP

ABSTRACT:

A process for the preparation of acetic acid by catalytic conversion of a synthesis gas being rich in hydrogen and carbon monoxide, comprising steps of:

(i) introducing a stream of the synthesis gas into a first reaction step at a predetermined pressure and temperature and reacting the synthesis gas in the presence of a catalyst being active in formation of methanol and dehydration of methanol, so as to obtain a gaseous process phase containing methanol, dimethyl ether, and water;

(ii) cooling the gaseous process phase of step (i) and obtaining a liquid phase with the methanol, dimethyl ether and water and a gaseous phase comprising carbon dioxide and residual amounts of dimethyl ether;

(iii) introducing the liquid phase formed in step (ii) into a second reaction step at a predetermined pressure and temperature and adding a predetermined amount of carbon monoxide; and

(iv) carbonylating methanol and dimethyl ether in the liquid phase with carbon monoxide by contact with a catalyst being active in the carbonylation of alcohols and ethers with carbon monoxide; and

(v) recovering from effluent of step (iv) a product stream mainly consisting of the acetic acid product.

5 Claims, 0 Drawing figures

☐ 7. Document ID: US 5502243 A

L6: Entry 7 of 10 File: USPT Mar 26, 1996

US-PAT-NO: 5502243
DOCUMENT-IDENTIFIER: US 5502243 A

TITLE: Hydrocarbonylation of dimethyl ether

DATE-ISSUED: March 26, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Waller; Francis J.	Allentown	PA		
Studer; David W.	Wescosville	PA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Air Products and Chemicals, Inc.	Allentown	PA			02

APPL-NO: 08/ 308018 [PALM]

DATE FILED: September 16, 1994

PARENT-CASE:
This application is a continuation-in-part of U.S. Ser. No. 07/963,771 filed Oct. 20, 1992, now abandoned, which is a continuation-in-part of U.S. Ser. No. 07/870,126 filed Apr. 15, 1992, the specifications of which are incorporated herein by reference.

INT-CL: [06] C07 C 67/36

US-CL-ISSUED: 560/232
US-CL-CURRENT: 560/232

FIELD-OF-SEARCH: 560/232

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4319038	March 1982	Kubbeler et al.	560/232
4323697	April 1982	Riskalla	560/232
4429150	January 1984	Drent	560/232
4430096	February 1984	Schnur et al.	48/206
4659864	April 1987	Isshiki	560/240
4810821	March 1989	Paulik et al.	560/232
4843170	June 1989	Isshiki et al.	560/261
5003104	March 1991	Paulik	560/232
5117046	May 1992	Paulik et al.	560/232
5138093	August 1992	Rizkalla	560/232
5218003	June 1983	Lewnard et al.	518/700

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
35860	September 1981	EP	
58442	August 1982	EP	
77116	April 1983	EP	
324475	July 1989	EP	
2610035	September 1976	DE	
1538782	January 1979	GB	

OTHER PUBLICATIONS

Sheldon, "Chemicals From Synthesis Gas," pp. 1-20, 140-149 & 164-166 (1983).
Lewnard, J. J. et al. "Single-Step Synthesis of Dimethyl Ether in a Slurry Reactor." Chemical Engineering Science vol. 45 No. 8 1990: 2735-2741.

ART-UNIT: 124

PRIMARY-EXAMINER: Shippen; Michael L.

ATTY-AGENT-FIRM: Fernbacher; John M.

ABSTRACT:

Oxygenated acetyl compounds ethylidene diacetate, acetic acid, acetic anhydride, acetaldehyde, and methyl acetate are produced directly from synthesis gas and dimethyl ether in a catalyzed liquid phase reaction system. The inclusion of carbon dioxide in the synthesis gas in selected amounts increases the overall yield of oxygenated acetyl compounds from the reactant dimethyl ether. When methanol is included in the reactor feed, the addition of carbon dioxide significantly improves the molar selectivity to ethylidene diacetate.

19 Claims, 3 Drawing figures

☐ 8. Document ID: US 5286900 A

L6: Entry 8 of 10 File: USPT Feb 15, 1994

US-PAT-NO: 5286900
DOCUMENT-IDENTIFIER: US 5286900 A

TITLE: Process for preparing acetic acid, methyl acetate, acetic anhydride or mixtures thereof

DATE-ISSUED: February 15, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hansen; John B.	Helsingor			DK
Joensen; Finn H.	Horsholm			DK
Topsoe; Haldor F. A.	Vedbaek			DK

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Haldor Topsoe A/S	Lyngby			DK	03

DISCLAIMER DATE: 20100223

APPL-NO: 07/ 940987 [PALM]
DATE FILED: September 4, 1992

PARENT-CASE:
This is a continuation of application Ser. No. 213,584, filed Jun. 30, 1988 now U.S. Pat. No. 5,189,203.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
DK	3348/87	June 30, 1987

INT-CL: [05] C07C 67/36

US-CL-ISSUED: 560/232
US-CL-CURRENT: 560/232

FIELD-OF-SEARCH: 560/232

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4102920	July 1978	Bartish	562/517
4374070	February 1983	Larkins et al.	562/891
4520216	May 1985	Skov et al.	518/713
5189203	February 1993	Hansen et al.	560/232

ART-UNIT: 124

PRIMARY-EXAMINER: Killos; Paul J.

ASSISTANT-EXAMINER: Conrad; Joseph M.

ATTY-AGENT-FIRM: Ostrolenk, Faber, Gerb & Soffen

ABSTRACT:

From a synthesis gas mainly consisting of hydrogen and carbon oxides an acetic acid product consisting of acetic acid, acetic anhydride and/or methyl acetate is prepared by reactions known per se in a technically simple reaction sequence and a high conversion degree when the reactions are combined such that in a first step at a pressure of 5-200 bar and a temperature of 150.degree.-400.degree. C. the synthesis gas is converted in the gas phase in a first reactor to methanol, of which at least a substantial proportion is converted to dimethyl ether in the same reactor in the presence of one or more catalysts which together catalyze the reactions

CO+2H.sub.2 .revreaction.CH.sub.3 OH (1)

2 CH.sub.3 OH.revreaction.CH.sub.3 OCH.sub.3 +H.sub.2 O (2)

and

CO+H.sub.2 O.revreaction.CO.sub.2 +H.sub.2 (3)

and then passing the entire effluent from the first reactor to a second reactor in which methanol and dimethyl ether at a pressure of 1-800 bar and a temperature of 100.degree.-500.degree. C. are carbonylated to the desired product in the presence of one or more catalysts which together catalyze the reactions

CH.sub.3 OH+CO.fwdarw.CH.sub.3 COOH (4)

CH.sub.3 OCH.sub.3 +CO.fwdarw.CH.sub.3 COOCH.sub.3, (5)

and optionally

CH.sub.3 OCH.sub.3 +2CO.fwdarw.(CH.sub.3 CO).sub.2 O (6)

and

CH.sub.3 COOCH.sub.3 +CO.fwdarw.(CH.sub.3 CO).sub.2 O (7)

and possibly even the hydrolysis

CH.sub.3 COOCH.sub.3 +H.sub.2 O.revreaction.CH.sub.3 COOH+CH.sub.3 OH(8).

6 Claims, 1 Drawing figures

☐ 9. Document ID: US 5189203 A

L6: Entry 9 of 10 File: USPT Feb 23, 1993

US-PAT-NO: 5189203
DOCUMENT-IDENTIFIER: US 5189203 A

TITLE: Process for preparing acetic acid, methyl acetate, acetic anhydride or mixtures thereof

DATE-ISSUED: February 23, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hansen; John B.	Helsingor			DK
Joensen; Finn H.	Horsholm			DK
Topsoe; Haldor F. A.	Vedbaek, all			DK

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Haldor Topsoe A/S				DK	03

APPL-NO: 07/ 213584 [PALM]
DATE FILED: June 30, 1988

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
DK	3348/87	June 30, 1987

INT-CL: [05] C07C 67/36, C07C 51/10, C07C 51/12, C07C 51/14

US-CL-ISSUED: 560/232; 562/517, 562/519, 562/890, 562/891
US-CL-CURRENT: 560/232; 562/517, 562/519, 562/890, 562/891

FIELD-OF-SEARCH: 560/232, 562/517, 562/519, 562/890, 562/891

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3689533	September 1972	Schultz	560/232
3816513	June 1974	Wakamatsu et al.	560/232
4356320	October 1982	Naglieri et al.	562/519
4430273	February 1984	Erpenbach et al.	562/891

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
162263	November 1985	EP	562/607
2610036	September 1972	DE	560/232
39-25031	November 1964	JP	

ART-UNIT: 124

PRIMARY-EXAMINER: Dees; Jose G.

ASSISTANT-EXAMINER: Conrad, III; Joseph M.

ATTY-AGENT-FIRM: Ostrolenk, Faber, Gerb & Soffen

ABSTRACT:

The present invention relates to a process for preparing acetic acid, acetic acid methyl ester or acetic anhydride or mixtures thereof by converting a synthesis gas mainly containing hydrogen and carbon oxides, by first converting the synthesis gas catalytically into a gas mixture containing methanol and dimethyl ether and then carbonylating this mixture catalytically into acetic acid and/or methyl acetate and/or acetic anhydride.

6 Claims, 1 Drawing figures

☐ 10. Document ID: US 20040048936 A1

L6: Entry 10 of 10 File: DWPI Mar 11, 2004

DERWENT-ACC-NO: 2004-281253
DERWENT-WEEK: 200426

TITLE: Production of liquid hydrocarbon oil used as fuel for reformer for production of synthesis gas by reacting synthesis gas in the presence of Fischer-Tropsch catalyst with low carbon monoxide shift reaction activity

INVENTOR: KAWAZUISHI, K; SHIMURA, M ; SHIROTO, Y ; TAUCHI, M

PRIORITY-DATA: 2001US-0825967 (April 5, 2001), 2003US-0649735 (August 28, 2003)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20040048936 A1	March 11, 2004		012	C07C027/06

INT-CL (IPC): C07 C 27/06

Term	Documents
METHANOL	380026
METHANOLS	528
DEHYDRATION	86383
DEHYDRATIONS	518
SHIFT	814148
SHIFTS	238817
REACT$3	0
REACT	629217
REACTA	2537
REACTAA	5
(L5 AND (METHANOL DEHYDRATION AND SHIFT REACT$3)).PGPB,USPT,USOC,EPAB,JPAB,DWPI.	10

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